

FIG. 1
PRIOR ART

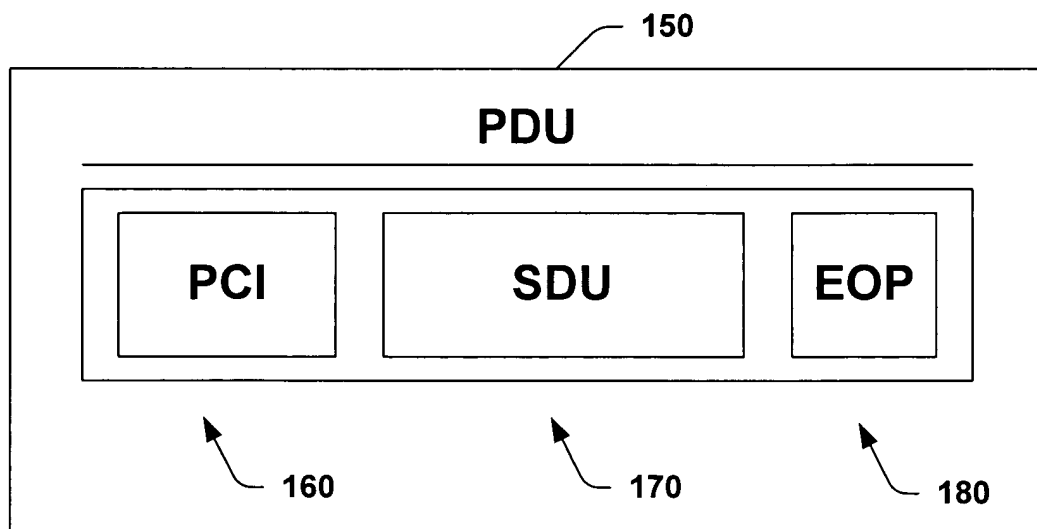


FIG. 2
PRIOR ART

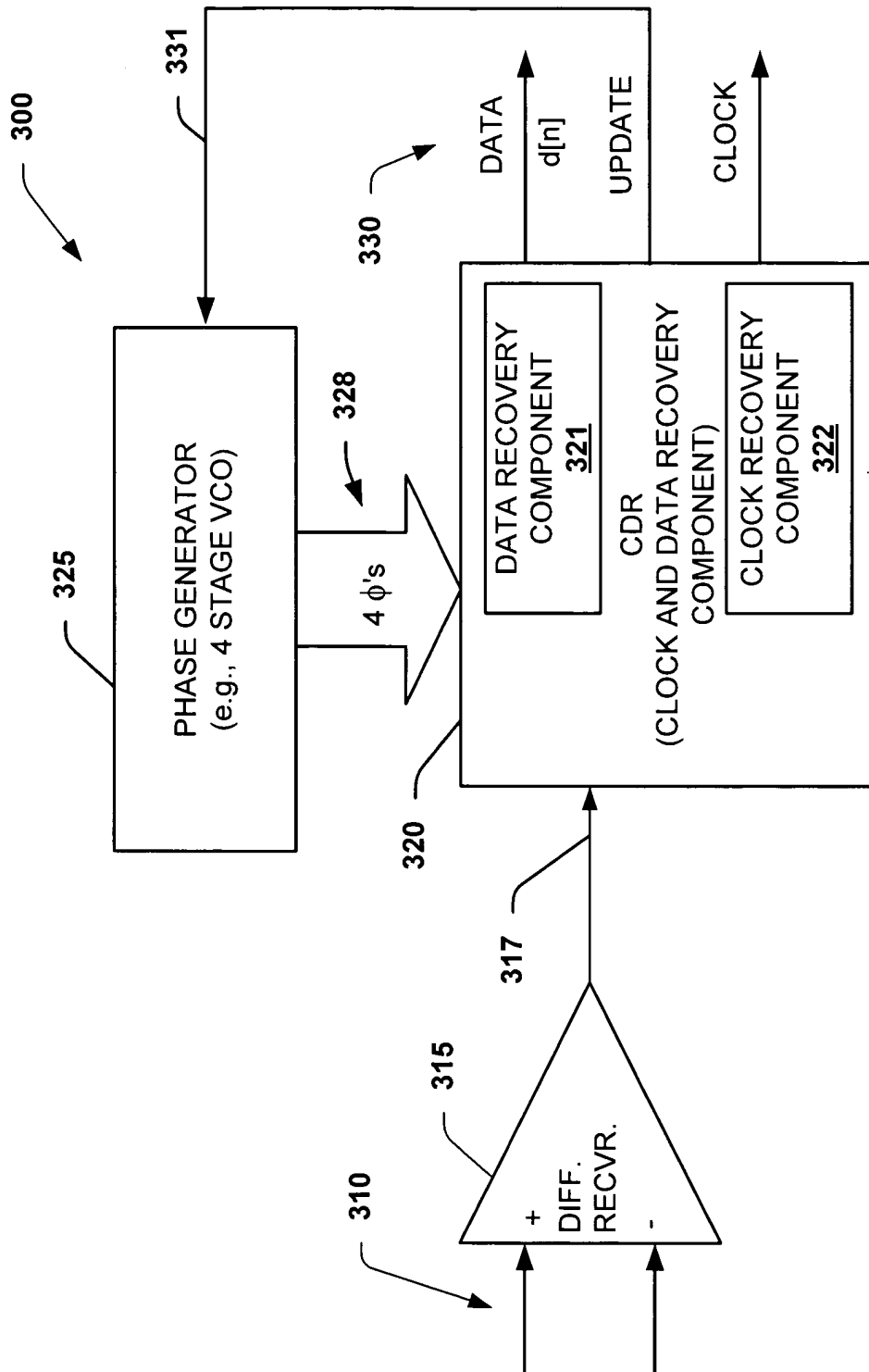


FIG. 3A

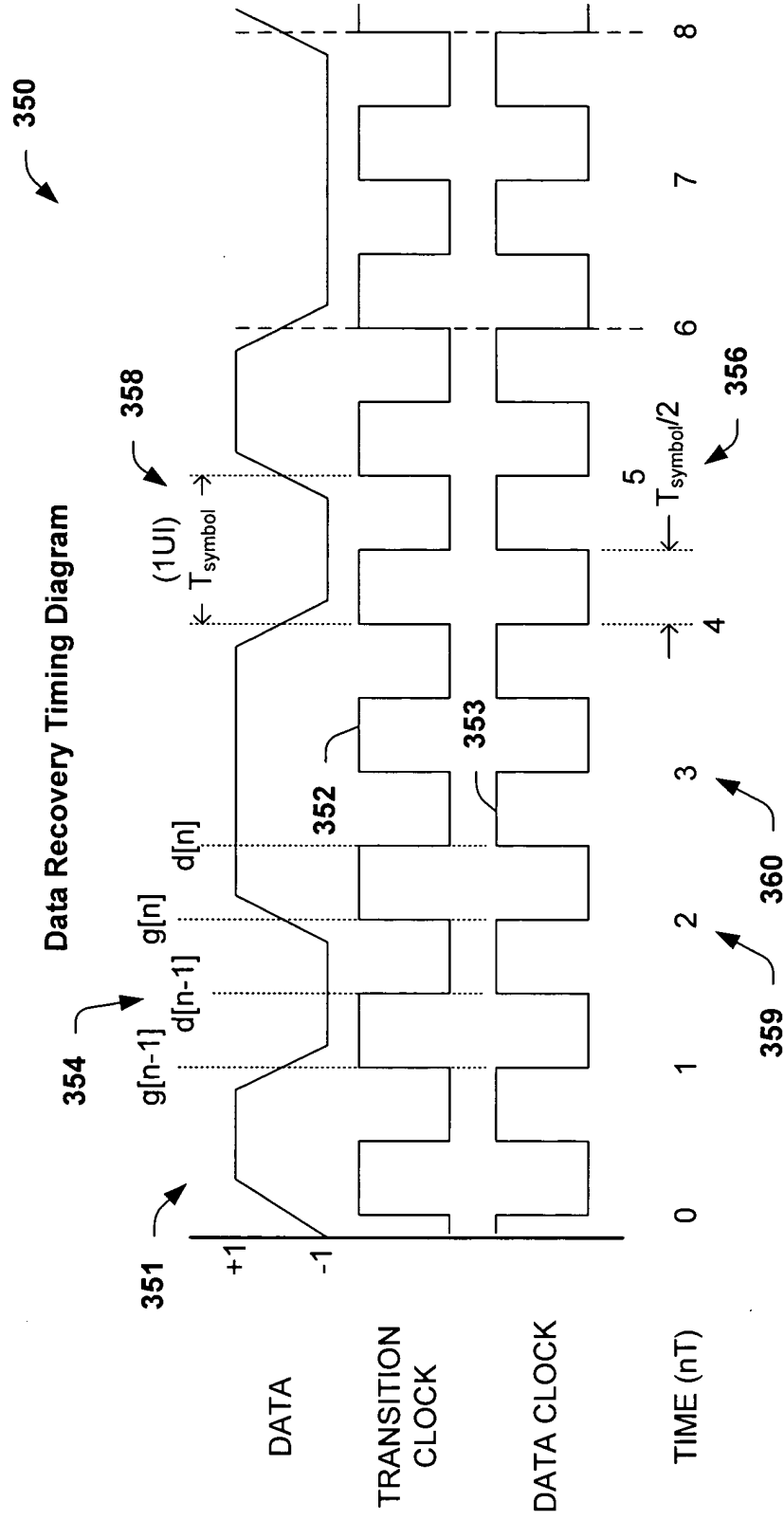


FIG. 3B

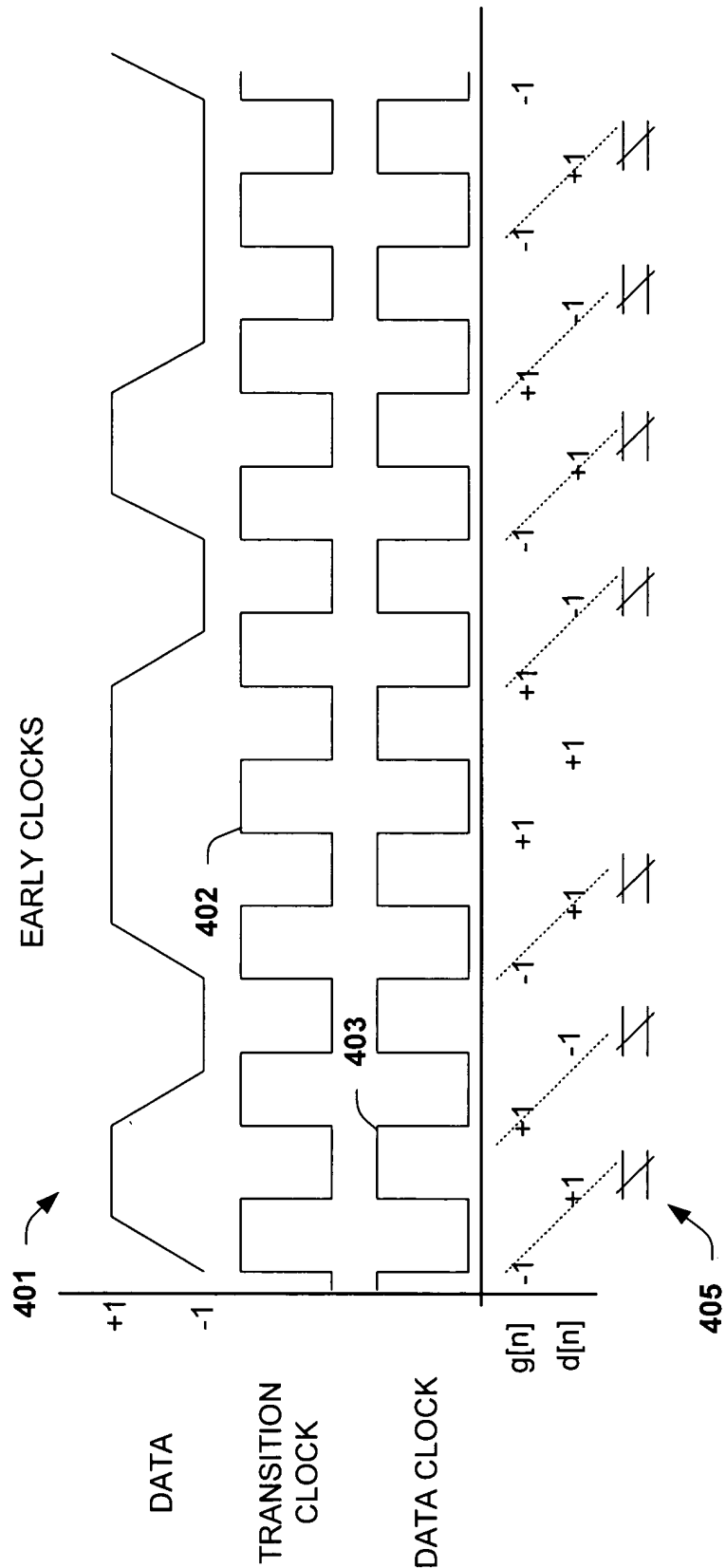


FIG. 4

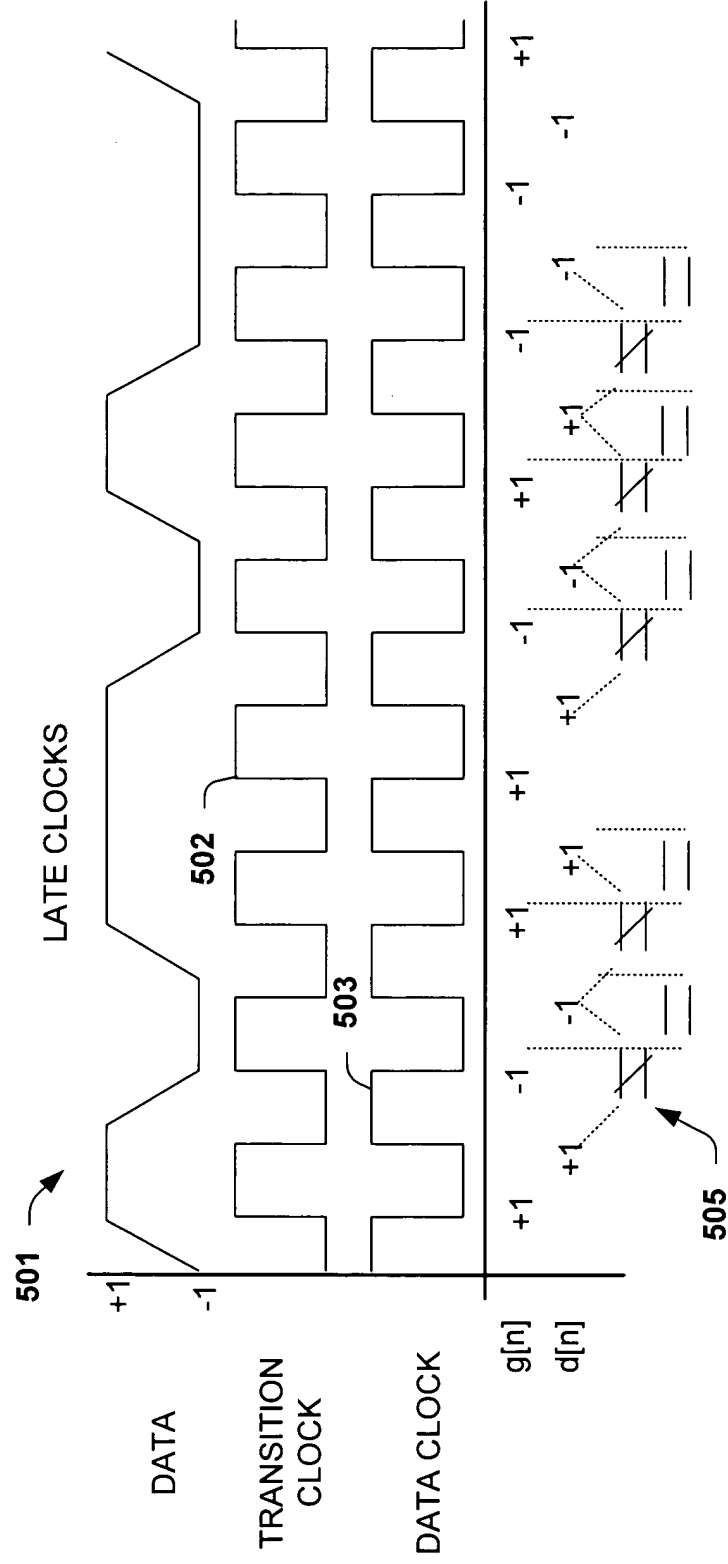


FIG. 5

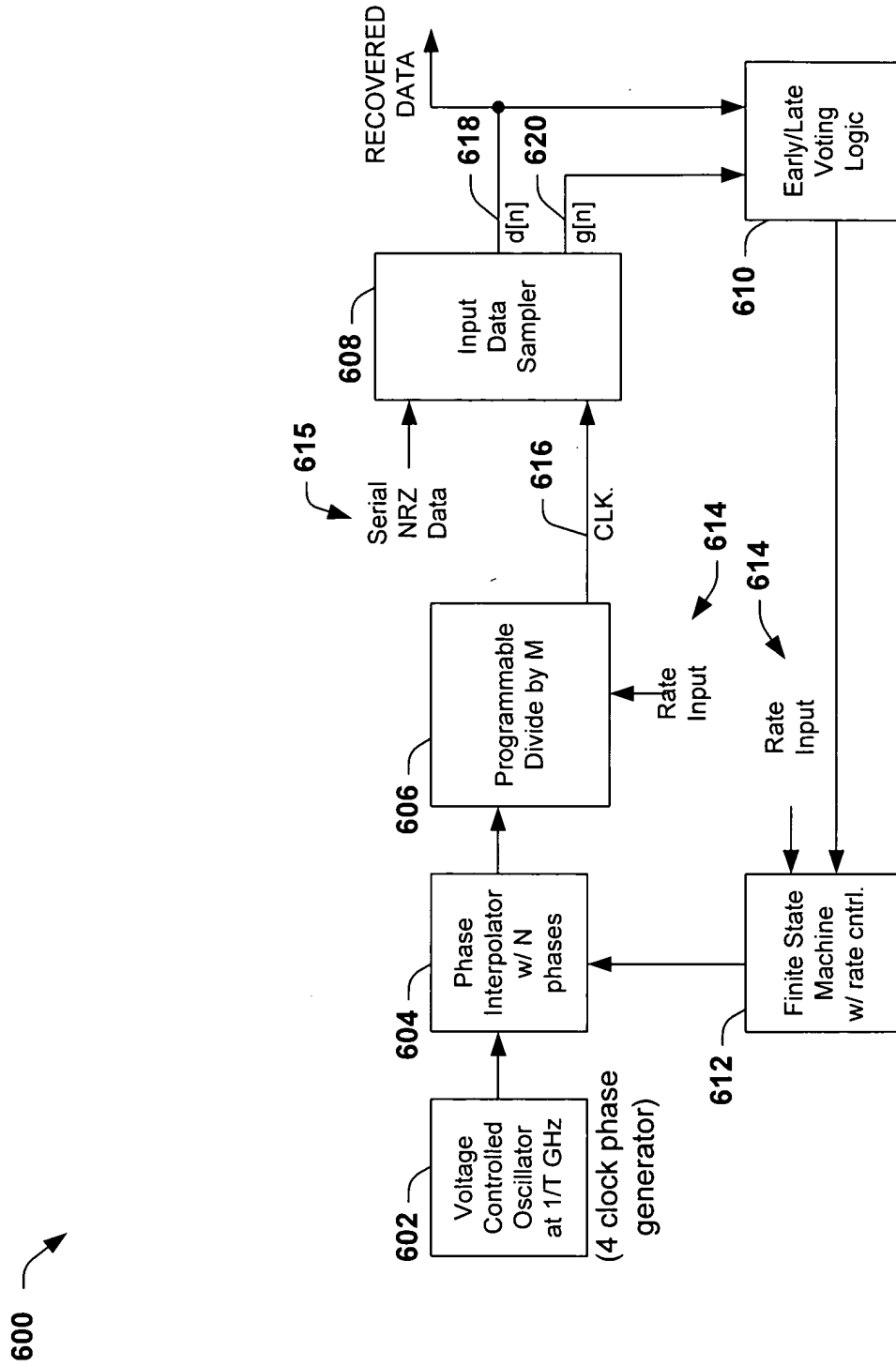


FIG. 6A

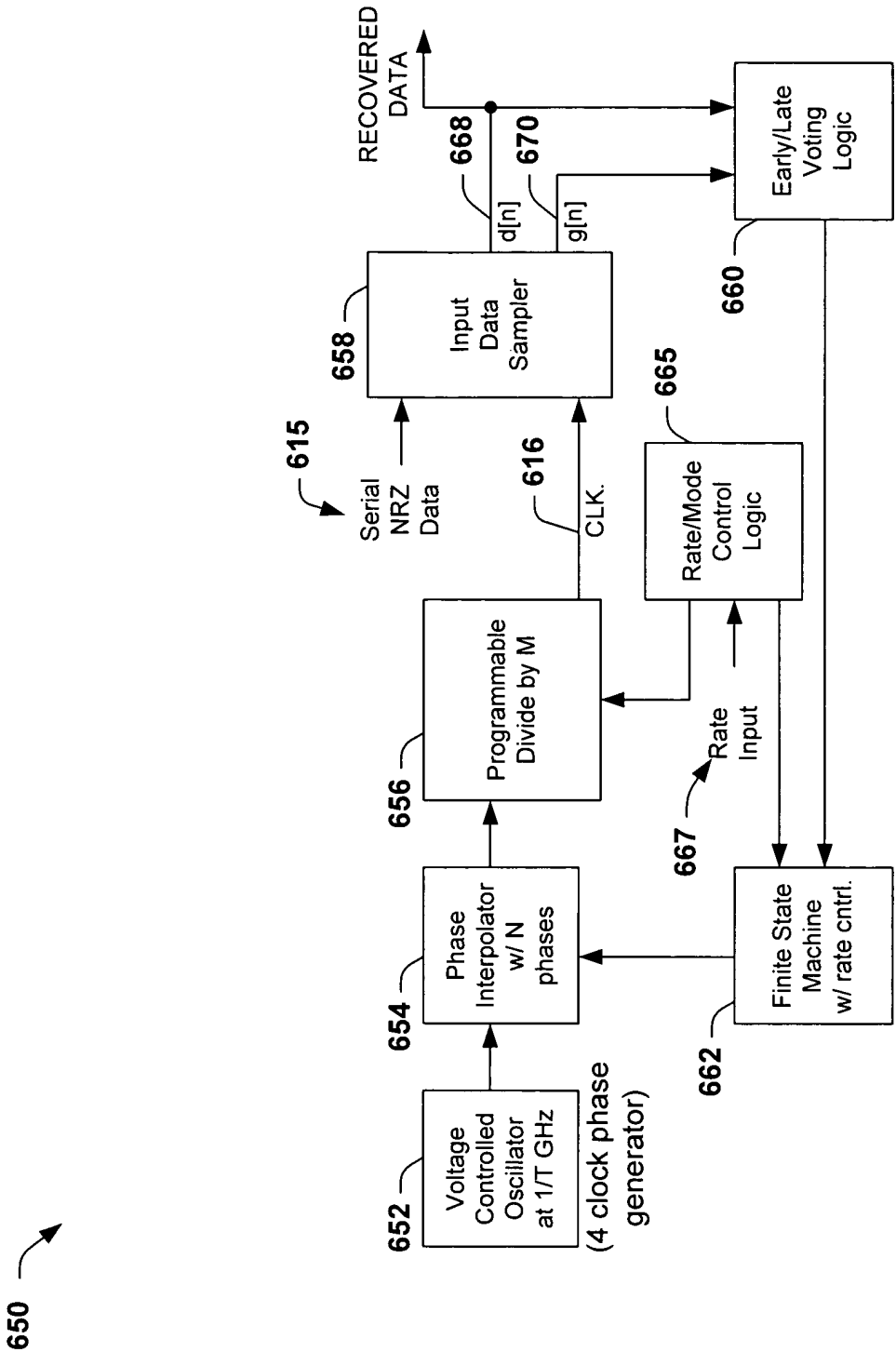


FIG. 6B

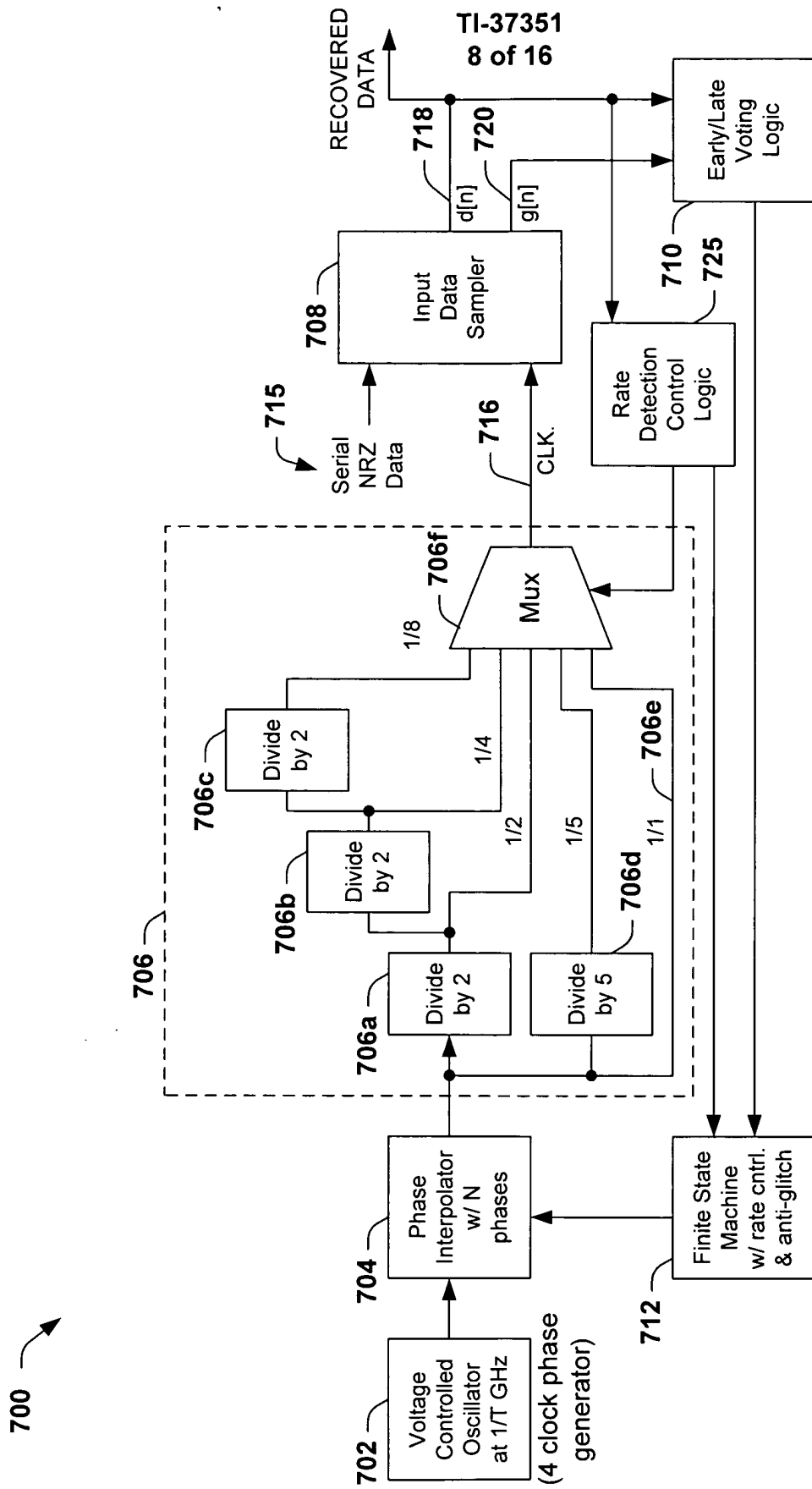


FIG. 7

800

				Typical Implementation			Proposed Implementation		
Data Rate (Gbps)	Unit interval (ps)	Steps/ UI	Latency (bits)	Steps/ Update	Tracking ability (ppm)	Latency (bits)	Steps/ Update	Tracking ability (ppm)	
12.5	80	64	32	1	488	32	1	488	
6.25	160	128	32	1	244	32	2	488	
3.125	320	256	32	1	122	32	4	488	
1.5625	640	512	32	1	61	32	8	488	
1.25	800	640	32	1	48.8	24	8	521	

FIG. 8

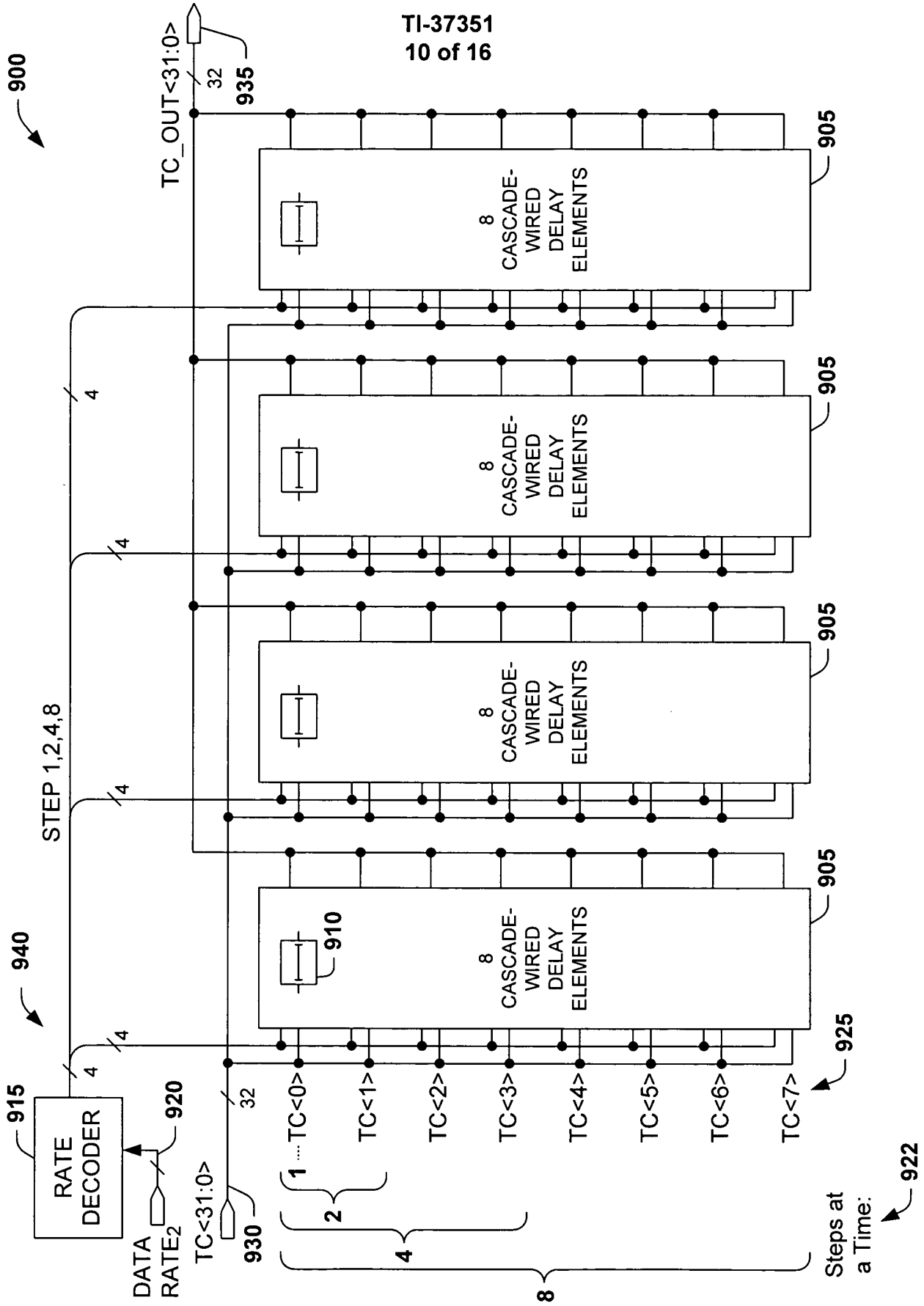


FIG. 9A

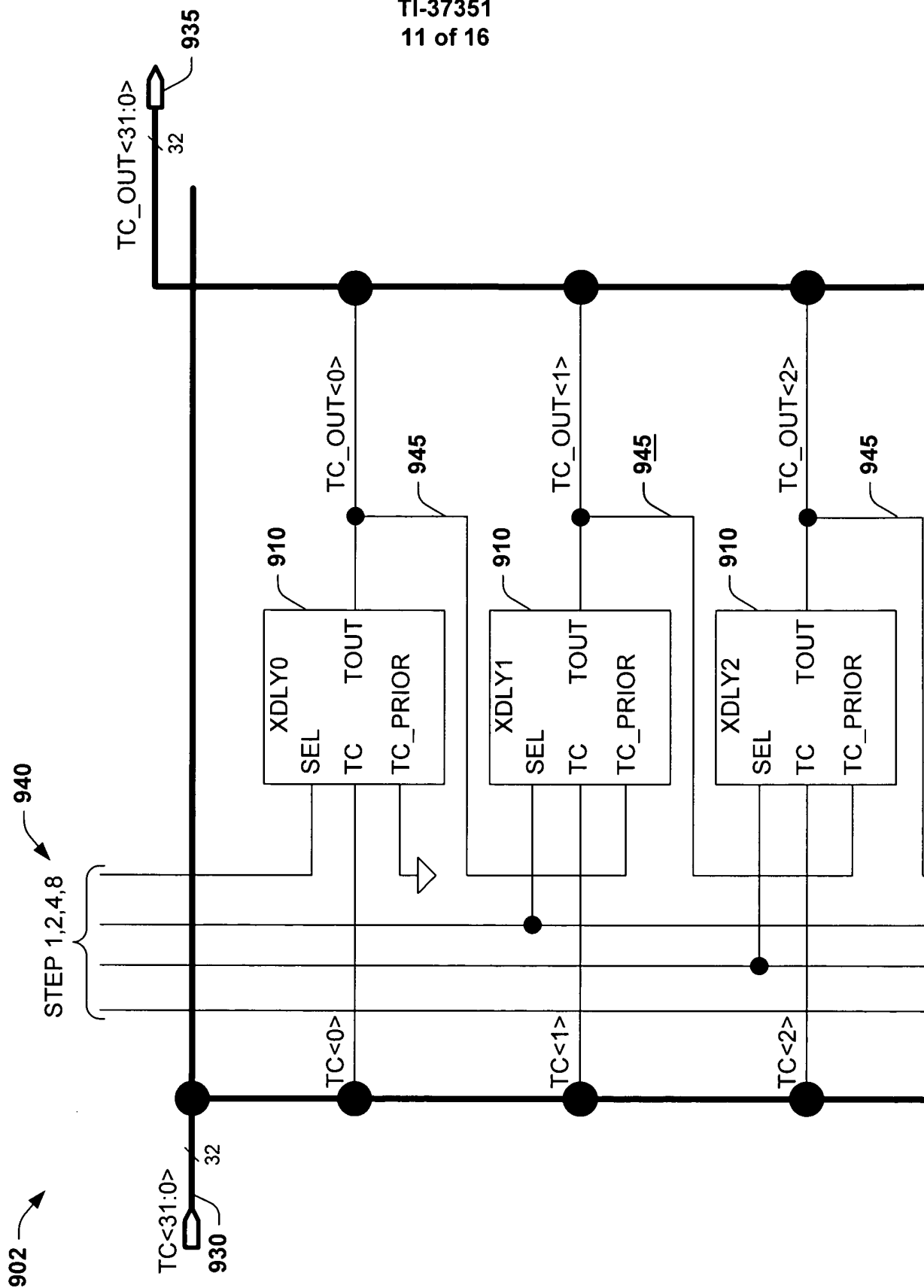


FIG. 9B

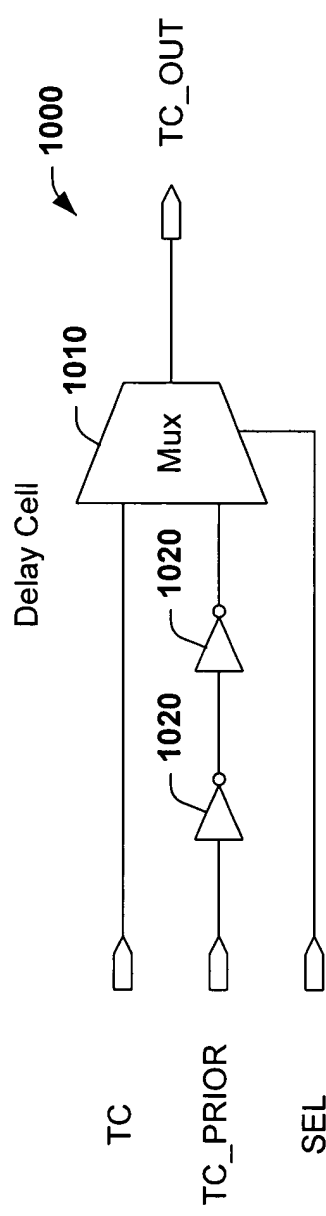


FIG. 10

TRANSIENT RESPONSE

1100

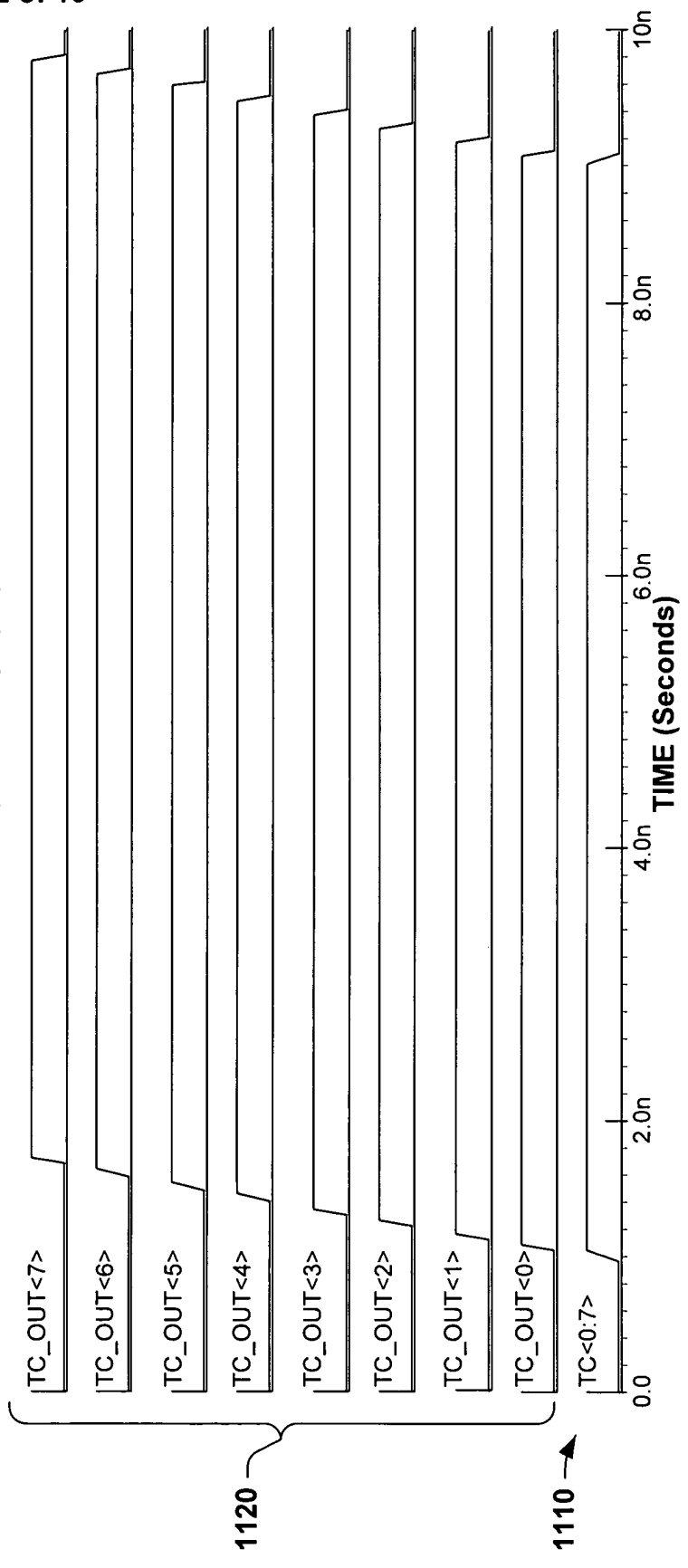
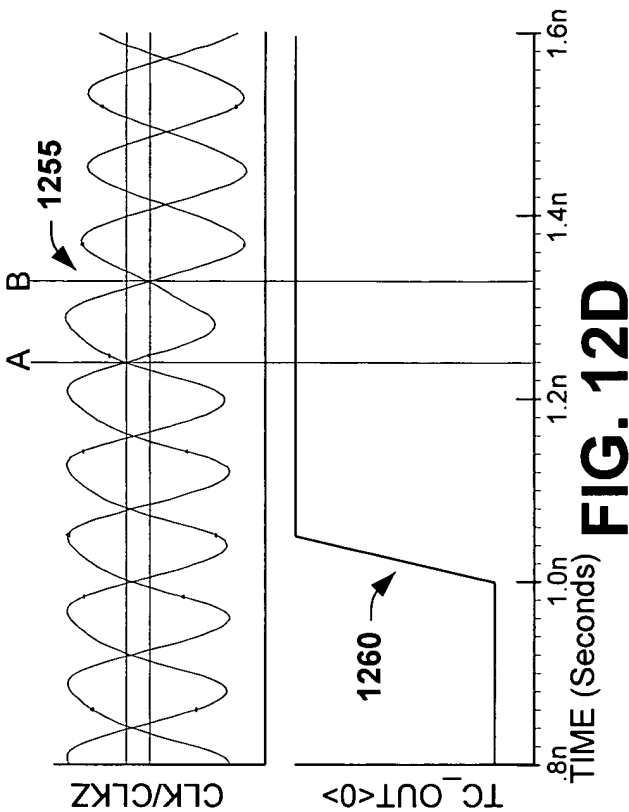
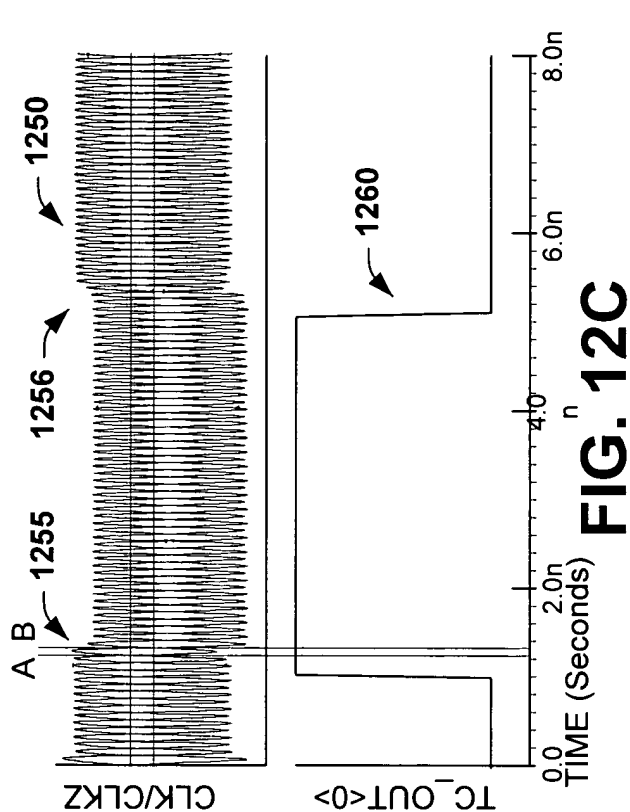
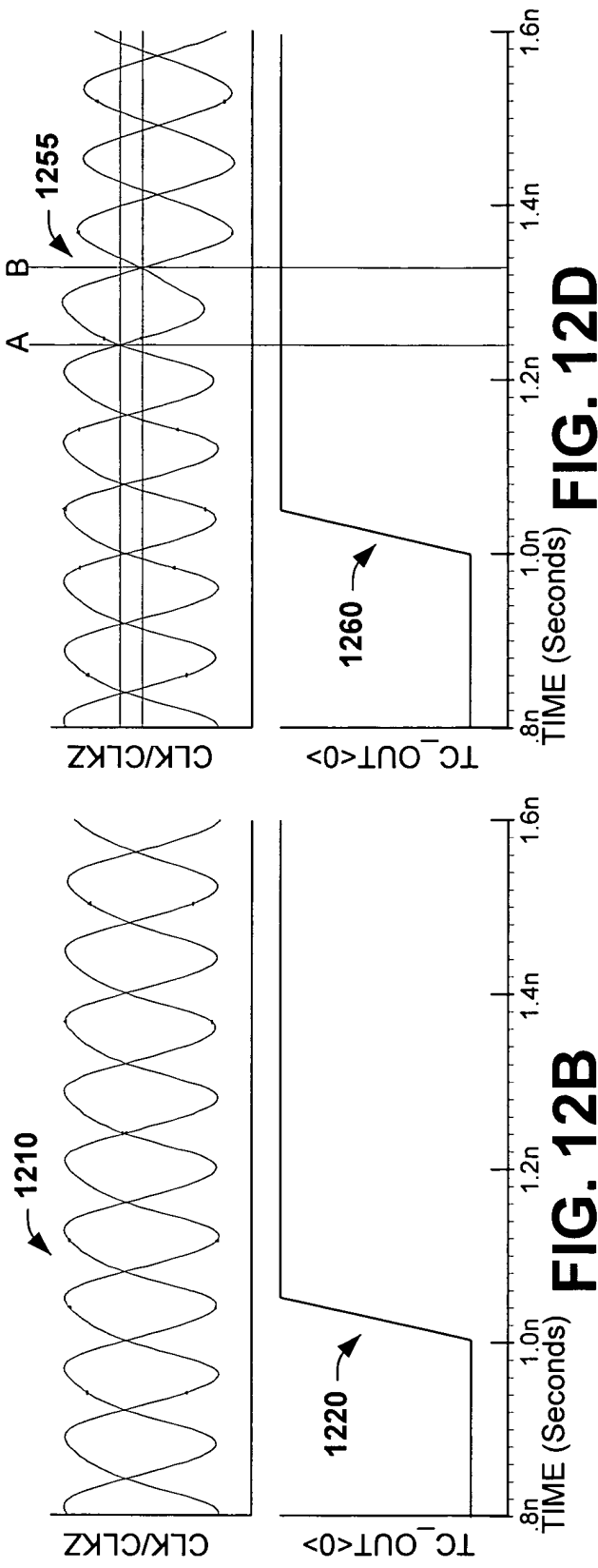
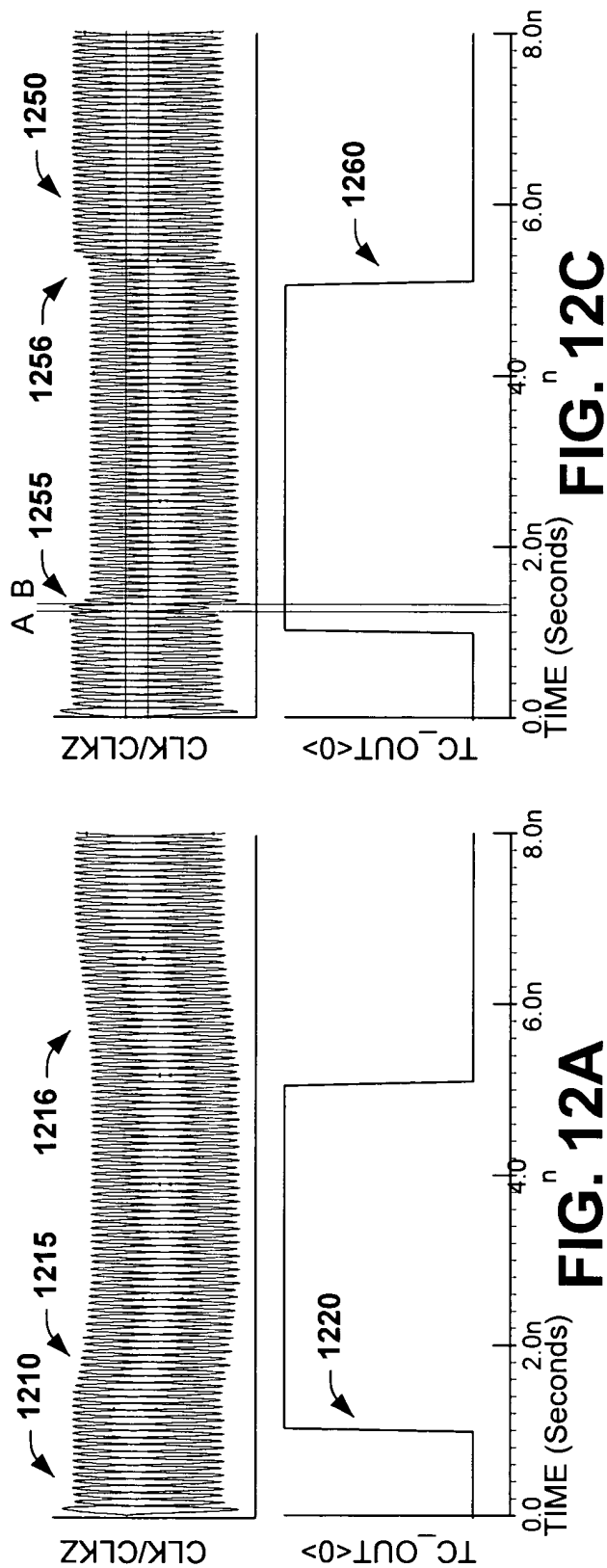


FIG. 11



1300

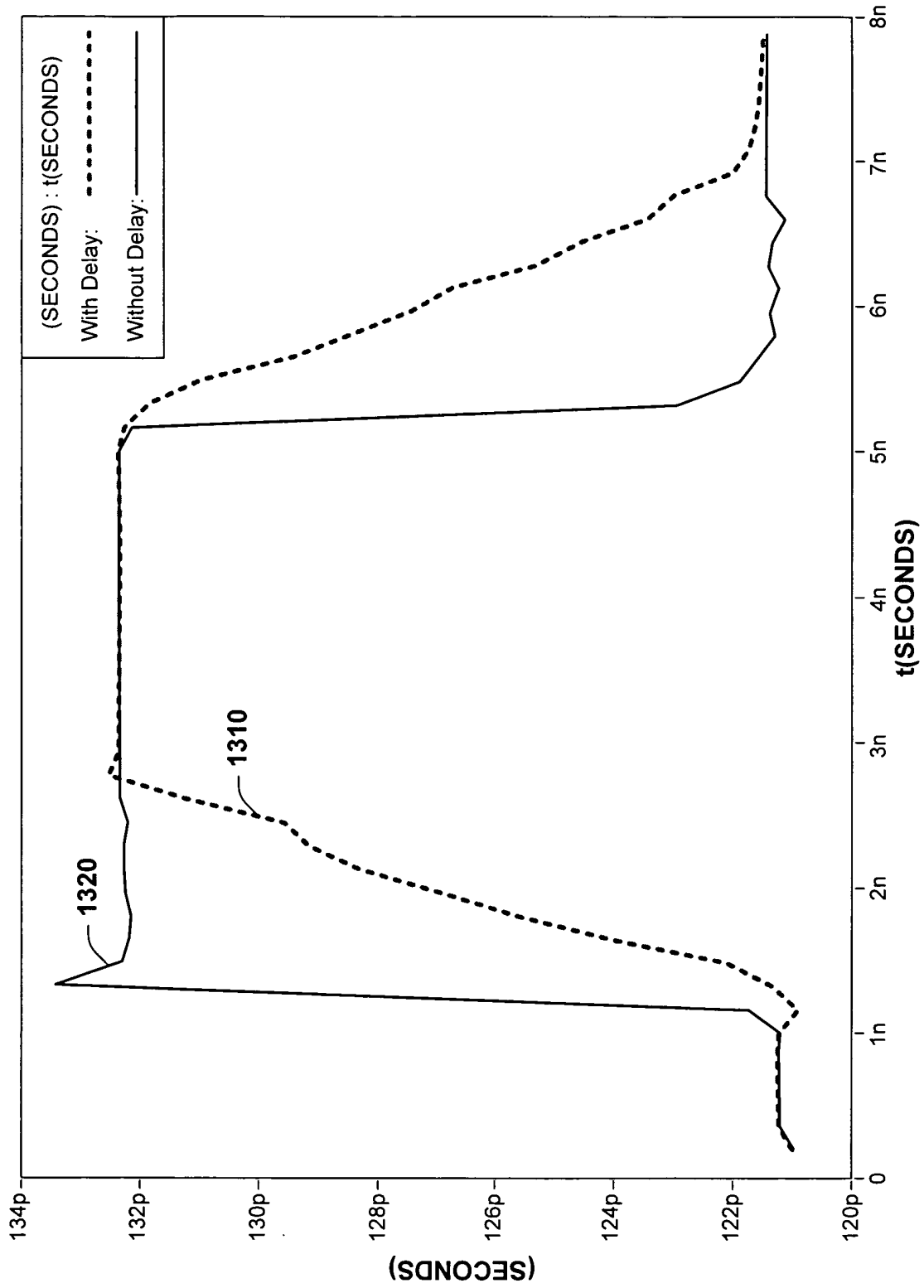


FIG. 13

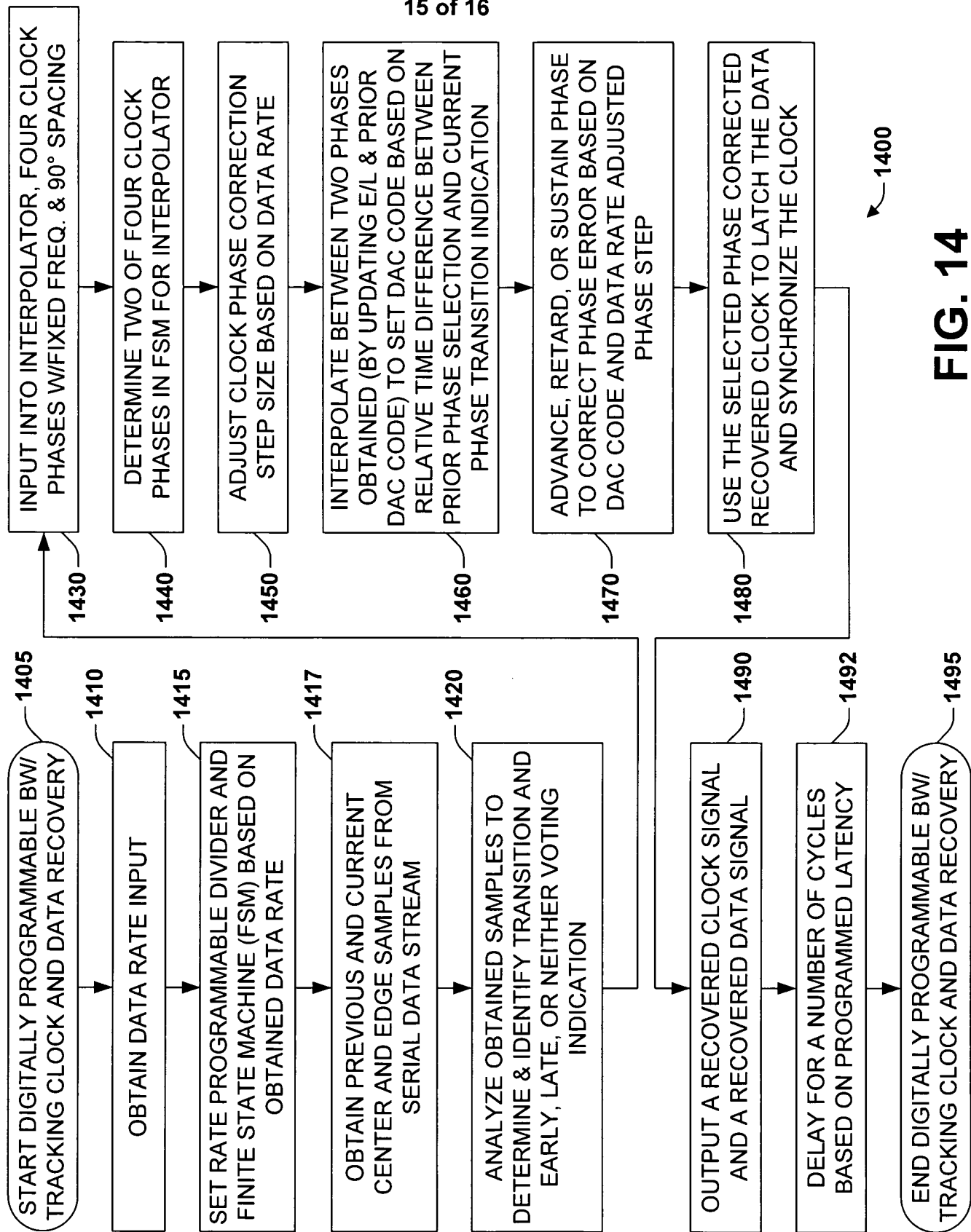


FIG. 14

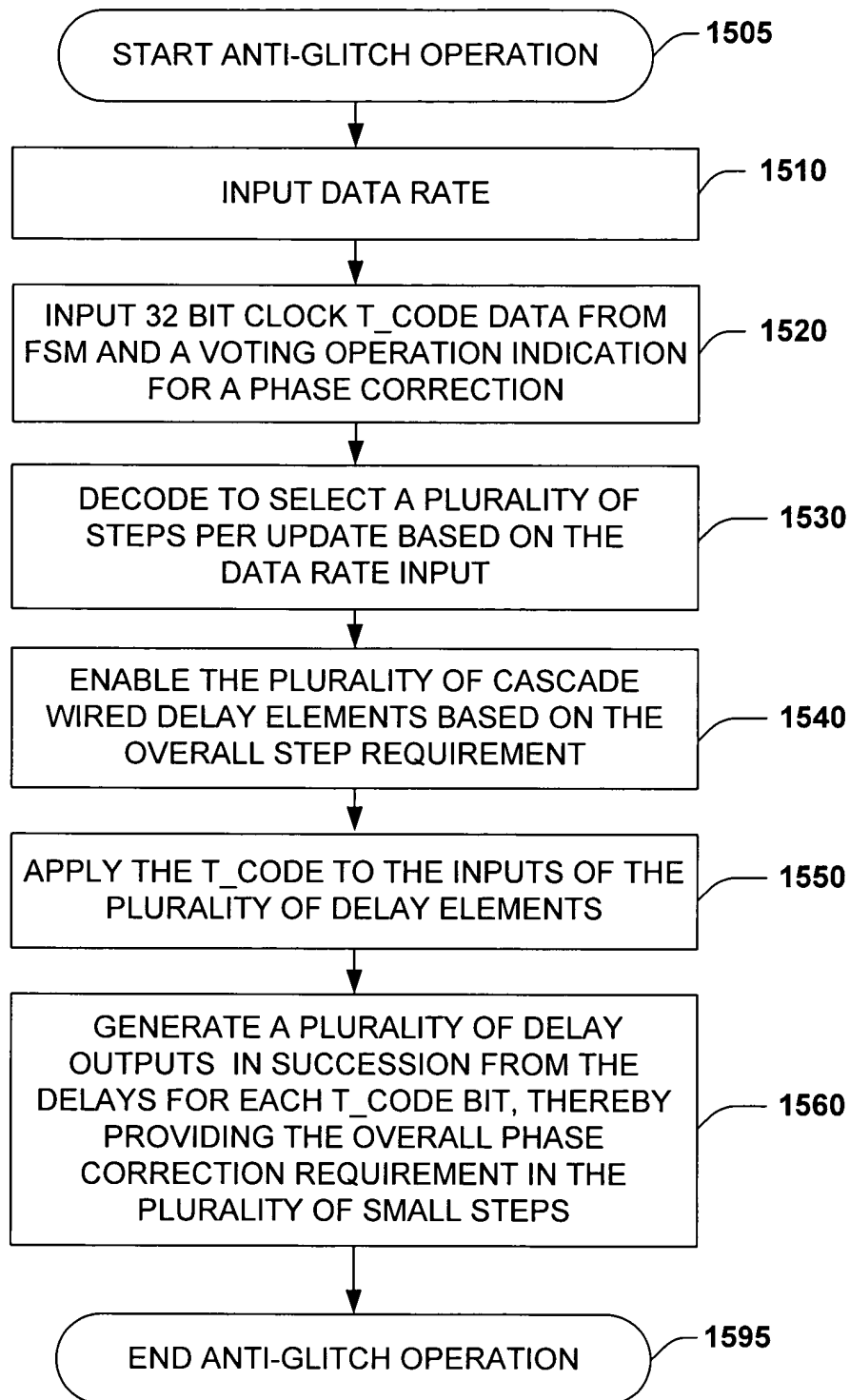


FIG. 15